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PATENT

Docket No.: **19603/2501 (CRF D-2375A)**

11/22/02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	:	Beer et al.	Examiner: A. Kubelik
Serial No.	:	09/770,693	
Cnfrm. No.	:	6816	Art Unit: 1638
Filed	:	January 26, 2001	
For	:	OOMYCETE-RESISTANT TRANSGENIC PLANTS BY VIRTUE OF PATHOGEN-INDUCED EXPRESSION OF A HETEROLOGOUS HYPERSENSITIVE RESPONSE ELICITOR	

RESPONSE TO SECOND RESTRICTION REQUIREMENT

U.S. Patent and Trademark Office
P.O. Box 2327
Arlington, Virginia 22202

Dear Sir:

In response to the written office action dated July 16, 2002 in which a second restriction requirement was imposed by the U.S. Patent and Trademark Office ("PTO"), applicants hereby elect, with traverse, the following subject matter: nucleotide sequence encoding SEQ ID NO: 3 and nucleotide sequence encoding SEQ ID NO: 11. Applicants traverse the restriction requirement for the following reasons.

Firstly, the PTO has improperly required restriction among the various nucleotide sequences that encode different hypersensitive response elicitor proteins as well as among the various nucleotide sequences that encode different secretion signal proteins. The asserted basis for making this restriction is that the nucleotides sequences of SEQ ID NOs: 2, 4, 6, and 8 encode different proteins (of SEQ ID NOs: 1, 3, 5, and 7, respectively) and the nucleotides sequences of SEQ ID NOs: 10, 12, 14, and 16 encode different polypeptides (of SEQ ID NOs: 11, 13, 15, and 17, respectively), all of which are deemed to constitute independent and distinct inventions.

As noted in applicants response to the first restriction requirement (submitted on April 22, 2002), the proteins encoded by SEQ ID NOs: 2, 4, 6, and 8 are hypersensitive response elicitors that have the same function and effect when employed in the present

invention (i.e., in the chimeric protein encoded by the chimeric gene construct of claim 1). While these proteins are different (i.e., have different amino acid sequences), these proteins and other known hypersensitive response elicitors are known to fall within an art recognized class that is defined by their shared structural and functional characteristics as outlined in applicants' April 2002 response. Moreover, each of the nucleic acid molecules of SEQ ID NOs: 2, 4, 6, and 8 is known in the art, having been independently patented or otherwise disclosed in the literature as follows:

SEQ ID NO: 2 – U.S. Patent No. 5,850,015 to Bauer et al.;

SEQ ID NO: 4 – U.S. Patent No. 6,174,717 to Beer et al.;

SEQ ID NO: 6 – U.S. Patent No. 5,858,786 to Collmer et al.; and

SEQ ID NO: 8 – Arlat et al., EMBO J. 13:543-533 (1994).

Thus, the nucleotide sequences *per se* are not novel. Applicants are merely claiming their use as a component within a chimeric gene construct (claims 1-21) and various combinations that include the chimeric gene (claims 22-56 and 71-72) as well as uses thereof (claims 57-70).

Likewise, the polypeptides encoded by SEQ ID NOs: 10, 12, 14, and 16 are secretion signals that have the same function and effect when employed in the present invention, namely the secretion of the chimeric proteins (of which they are a part) externally of the plant cell expressing the chimeric protein. This allows the hypersensitive response elicitor to function within the intracellular regions of plant tissue. Each of the nucleotide sequences encoding SEQ ID NOs: 12, 14, and 16 is known in the art, having been independently identified and/or described as follows:

SEQ ID NO: 12 – *N. tabacum PR1-b* gene, Genbank Accession X03465;

SEQ ID NO: 14 – *N. tabacum PR1-a* gene, Genbank Accession X06361; and

SEQ ID NO: 16 – *N. tabacum PR4-a* gene, Genbank Accession X58546.

SEQ ID NO: 10, also encoding a secretion signal from the *N. tabacum PR1-b* gene, differs from SEQ ID NO: 12 by the modification of its 5' and 3' ends to facilitate insertion into a genetic construct using restriction enzymes. In any event, applicants are merely claiming their use as a component within a chimeric gene construct (claims 3-4) and various combinations that include the chimeric gene (claims 32-33).

Secondly, the PTO has also ignored the Manual of Patent Examining Procedure rules governing the handling of linking claims. Claim 1 (generic subcombination claim) is not limited to any one particular hypersensitive response elicitor protein or polypeptide. Claim 2 (generic combination claim) is not limited to any one particular

secretion signal protein or polypeptide. As such, these claims are linking claims which link together the above-identified nucleotide sequences as used in the claimed chimeric gene. According to MPEP § 809.03, claims to a genus which link together claims to species should specifically be designated as linking claims at the time the restriction is made. As linking claims, they also should not be associated with any one of the linked groups. MPEP § 814. Where linking claims are involved, allowance of a linking claim would provide for rejoinder of all linked claims to species. MPEP § 809.03.

Thirdly, from a practical perspective, although the nucleotide sequences for the above-identified hypersensitive response elicitors were known previously, applicants included them in the application in part to satisfy the written description requirement under 35 U.S.C. § 112 (first paragraph) for the claimed genus. Imposing a restriction requirement for purposes of now limiting applicants' invention to a chimeric gene encoding a specific hypersensitive response elicitor (SEQ ID NO: 3, as elected) negates the breadth of the invention as claimed and effectively defeats the purpose for which applicants included such matter in the first place.

In view of all of the foregoing, applicants submit that the restriction requirement should be withdrawn with respect to the nucleotide sequences encoding the hypersensitive response elicitors of SEQ ID NOs: 1, 3, 5, and 7 and with respect to the nucleotide sequences encoding the secretion signals of SEQ ID NOs: 11, 13, 15, and 17. As a result, all of claims 1-56 should be examined together.

Respectfully submitted,

Date: November 18, 2002

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: U.S. Patent and Trademark Office P.O. BOX 2327 Arlington, VA 22202, on the date below.

Date 11/18/02 | Wendy L. Barry